

File Edit View History Bookmarks Tools Help

Page not found · GitHub Page: X Programming with Python: X Callout Blocks - Quarto: X (42) compute-skills-2025 - X Home X checking.ipynb - JupyterLab X

datahub.berkeley.edu/user/paciorek/lab/tree/compute-skills-2025/units/checking.ipynb

File Edit View Run Kernel Git Tabs Settings Help

/ compute-skills-2025 / units /

Name	Mo...	Size
additional-topics.qmd	11d ago	22.4 KB
binary_search_orig.py	11d ago	678 B
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inflammation-01.csv	11d ago	5.2 KB
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checking.ipynb

```
[*]: 1 import newton
      2 import numpy as np
      3 newton.optimize(2.95, np.cos)

[ ]: 1
```

Evaluate Code

1 print(x0)

Cancel Evaluate

CHECKING.IPYNB

VARIABLES

f: ufunc
tol: 0.0001
x0: 2.95

CALLSTACK

BREAKPOINTS

SOURCE

```
1 def deriv(f, x, eps = 1e-8):
2     # if x < 5:
3     #     raise RuntimeError("fake error")
4     return (f(x+eps) - f(x)) / eps
5
6
7 def deriv2(f, x, eps = 1e-5):
8     return (deriv(f, x+eps, eps) - deriv(f, x, eps)) / eps
9
10
11 def optimize(x0, f, tol = 1e-4):
12     x_new = x0 - deriv(f, x0) / deriv2(f, x0)
13     x = x0
14     while abs(x_new - x) > tol:
15         x = x_new
16         x_new = x0 - deriv(f, x0) / deriv2(f, x0)
17     return {"x": x_new,
18           'value': f(x_new)}
19
20
21
22
```

KERNEL SOURCES

Simple 2 main Python 3 (ipykernel) Idle Mem: 267.38 / 1024.00 MB

Mode: Command Ln 3, Col 21 checking.ipynb

evaluate code